AIRSAR Flight Planning and Data Products

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Abstract:

AIRSAR is an airborne synthetic aperture radar that is built and operated for NASA by the California Institute of Technology/Jet Propulsion Laboratory (JPL). AIRSAR collects operational radar data for scientific investigations and is also used to develop and test new radar technologies for possible use on space shuttle and satellite radar systems. AIRSAR operates at three frequencies: C-band (0.057 m), L-band (0.25 m) and P-band (0.68 m). The different modes of operation of each frequency are discussed in this paper along with the processed data products that are generated from each mode.

We also discuss the information that is required from AIRSAR customers for flight line planning. Generally there are two type of sites where AIRSAR data are collected: specific target sites and larger area mapping sites. Once the site has been selected, the AIRSAR data collection mode(s) is selected. With the site location and mode information, the data collection lines are planned at JPL using the Flight Planning Software. Image and text electronic output of the FPS are sent to the customer for review and approval before data collection. Based on feed back from the customer, lines are modified or sent to the airplane navigators as part of a daily flight plan.

Following data collection, the AIRSAR data are processed to survey and precision level data products. These product types and their characteristics are also discussed in the paper with examples given.